1. A method for minimizing the cure time of a thermoset in-mold coating for a molded article, said method comprising the steps of:

gathering information on the reactivity of said thermoset;

using said information to develop a theoretical kinetic model representing a cure rate of said thermoset as a function of temperature and an initiator level in the coating;

fitting results obtained from said theoretical kinetic model to a metamodel of the cure time as a function of an initiator level and reaction temperature; and

minimizing said cure time using said metamodel for a minimum specified flow time.

2. The method according to claim 1, wherein said theoretical kinetic model is a free radical based kinetic model.

3. The method according to claim 1, wherein said step of gathering information on the reactivity of the thermoset is performed by conducting differential scanning calorimetry scans on said thermoset.

4. The method according to claim 1, where said kinetic model is used to generate flow time and cure time of said thermoset as functions of mold temperature and initiator level in said thermoset.

5. The method according to claim 1, wherein instructions for carrying out said method are contained in computer readable medium format.

6. A method for optimizing the location of an in-mold coating injection port in a mold so as to minimize the flow time for an in-mold coating to flow over at least a part of a molded article, said method comprising the steps of:

predicting a coating fill pattern in said mold; and

using said pattern to determine optimal placement of a coating injection nozzle so as to minimize the flow time for an in-mold coating

to flow over at least a part of a molded article and to reduce the presence of surface defects of said coating.

7. The method according to claim 6, wherein said step of predicting a coating fill pattern in said mold is performed by determining the relation between a pressure in said mold and a flow rate of said coating.

8. The method according to claim 6, wherein said step of predicting a coating fill pattern in said mold is performed by determining the relation between a pressure in said mold and a coating thickness on said substrate.

9. The method according to claim 6, wherein the relation between a fluidity of said coating and a pressure gradient in said mold and the relation between a coating thickness and a pressure in said mold is determined.

10. The method according to claim 6, wherein instructions for carrying out said method are contained in computer readable medium format.